

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Atty. Ref.: 4662-9

VEILLAT et al

Conf. No.: 5278

Serial No. 10/530,435

Group: 1794

Filed: September 28, 2005

Examiner: COLE

For: **PROCESS FOR MAKING A MONOFILAMENT-LIKE PRODUCT**

* * * * *

June 1, 2009

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPLICANTS' BRIEF ON APPEAL

Sir:

This Appeal is from the Official Action dated March 3, 2009, finally rejecting elected claims 1-9 and 16-17 presently pending herein.¹ As will become evident from the following discussion, the Examiner's rejections are in error and, as such, reversal of the same is solicited.

¹ The claims pending in this application and on appeal herein appear in the Section VIII Claims Appendix accompanying this Brief.

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I. Real Party In Interest

The real party in interest is the owner of the subject application, namely DSM IP Assets B.V.

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II. Related Appeals and Interferences

No appeals and/or interferences related to this application are pending.

III. Status of Claims

- A. The following claims are presently pending in this application: Claims 1-17.
- B. The following claims are the claims on appeal and have been rejected in the Examiner's "final" Official Action of March 3, 2009: Claims 1-9 and 16-17.
- C. The following claims have been cancelled during prosecution to date:
None.
- D. The following claim(s) have been allowed: None
- E. The following claims have been withdrawn: Claims 10-15
- F. The following claims have been objected to: None

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IV. Status of Amendments

No amendments subsequent to the March 3, 2009 "final" Official Action have been filed.

V. Summary of Claimed Subject Matter²

The invention as defined by independent claim 1 (the sole independent claim pending herein) is directed to a process for making monofilament-like products wherein a precursor of indefinite length (page 2, lines 31-35) containing at least one strand comprised of a spun yarn of polyolefin **staple fibres** (page 2, lines 24-29 and page 4, line 32 through page 5, line 10) is exposed to a temperature within the melting point range of the polyolefin fibres for a time sufficient to soften the staple fibers **without partial melting** and allow adjacent staple fibers to **at least partly fuse** to one another (page 3, line 2 through page 4, line 14). Simultaneously with such a processing step, the precursor is stretched at a draw ratio of at least 1.0. (Page 4, lines 15-26)

² The numbers in parenthesis refer to page and line numbers of the originally filed specification.

VI. Grounds of Rejection to be Reviewed on Appeal

The following rejections were advanced in the final Official Action dated March 3, 2009:

1. Claims 1-3, 5-9 and 16-17 were rejected under 35 USC §103(a) as allegedly "obvious" and hence unpatentable over Cook (USP 6,148,597) in view of WO '029 (WO 91/14029).
2. Claim 4 was rejected under 35 USC §103(a) as allegedly "obvious" and hence unpatentable over Cook in view of WO '029 and further in view of JP '646 (JP 87015646).

VII. Arguments

1. Claims 1-3, 5-9 and 16-17 are patentably unobvious over Cook in view of WO '029

A. The Claimed Invention

The present invention as defined by pending claims 1-3, 5-9 and 16-17 herein is directed toward a process for making monofilament-like products wherein a precursor of indefinite length containing at least one strand comprised of a spun yarn of polyolefin **staple fibres** is exposed to a temperature within the melting point range of the polyolefin fibres for a time sufficient to soften the staple fibers **without partial melting** and allow adjacent staple fibers to **at least partly fuse** to one another. Simultaneously with such a processing step, the precursor is stretched at a draw ratio of at least 1.0.

The resulting monofilament-like products having improved abrasion resistance (as expressed in the number of cycles until breakage) and/or surprising high tensile strengths as compared to the initial spun yarn or a plied yarn made from such spun yarn and used as the precursor. The process of the claimed invention achieves a filamentary product that exhibits an abrasion resistance according to ASTM D3108 that is greater than a comparable filamentary product made with a continuous multifilament yarn. (See in this regard page 13, lines 3-9 and the data in Table 1 of the originally filed specification).

B. The Claimed Invention is Statutorily Unobvious

The Examiner criticizes the proffered evidence provided by the Declaration of Christian Dirks entitled "Declaration Under 37 CFR §1.132" submitted with the applicants' previous response dated December 11, 2008. In essence, the Examiner asserts that:

“...although the specification establishes that the instant invention results in an *unexpected improvement* in the abrasion resistance versus the invention of Cook, the instant claims are drawn to a process, not a product.”³

The Examiner explicitly acknowledges therefore that the product of the invention provides unexpected improvement over Cook.⁴ The Examiner however asserts that the evidence provided by the Dirks Declaration does not have any probative value with respect to the presently claimed process. Applicants suggest that such a position is a clearly erroneous view of the invention and the evidence provided to support the same.

In this regard, the process of the claimed invention involves the use of at least one strand comprised of spun yarn of polyolefin staple fibers and thus a comparison of the product made by such a process versus a product made by the prior art Cook process which uses polyolefin *continuous* filaments is in fact quite probative as to the *unobviousness* of the presently claimed invention – i.e., the process. Stated another way, one following the prior art process would achieve a product having certain abrasion resistance properties by virtue of the fact that polyolefin *continuous* filaments were employed in the process, whereas one following the presently claimed process would achieve a product having certain resistance properties by virtue of the fact that polyolefin *staple* fibers are employed. As such, a comparison of the abrasion resistance properties of the resulting filaments is quite telling as to the *unobviousness* of the latter in view of the former.

The Examiner seems to be of the opinion that, just because staple fibers are known through WO '029, then one would “obviously” substitute the staple fibers of WO '029 for the continuous fibers of Cook. In this regard, the Examiner asserts that:

³ Official Action dated March 3, 2009 at page 4, paragraph 5, lines 3-5 (emphasis added).

⁴ Ironically therefore the Examiner has acknowledged that the non-elected and withdrawn product-by-process claims – i.e., products made by the exact same process at issue here – are statutorily

"...Cook discloses the claimed process except that it does not teach employing staple fibers to make the yarn. WO '029 is relied upon to show that **yarns can be made of staple fibers** of ultra high molecular weight polyethylenes in addition to continuous filaments of ultrahigh molecular weight polyethylenes...."⁵

With all respect due the Examiner, the fact that a yarn *can* be made does not in and of itself establish statutory obviousness under 35 USC §103(a). In this vein, the Examiner apparently supports her rejection by speculating that an ordinarily skilled person would substitute the staple fibers of WO '029 for the continuous fibers of Cook because "...a benefit of using staple fibers to make the yarns is that it is less expensive because [use of staple fibers] permits the use of some fiber which would have been wasted."⁶

Applicants of course do not dispute that staple fibers are known. Nor do Applicants dispute that staple fibers have in the past been spun into filaments. What applicants vigorously dispute is the alleged obviousness of a process for producing a monofilament-like product (i.e., a filamentary product exhibiting monofilament-like properties) by a) exposing a precursor filament of indefinite length containing at least one strand comprised of a spun yarn of polyolefin staple fibres to a temperature within the melting point range of the polyolefin fibres for a time sufficient to soften the staple fibers without partial melting and allow adjacent staple fibers to at least partly fuse to

unobvious due to the "unexpected improvement over Cook". This acknowledgement is thus an additional reason to rejoin such claims following allowance of the elected process claims at issue.

⁵ Official Action dated March 3, 2009 at page 2, penultimate line bridging page 3, emphasis added)

⁶ The Examiner substantiates this statement by reference to page 3, lines 10-19 of WO '029. However, nowhere in such cited passage can the applicants discern support for use of staple fibers over continuous fibers due to waste-saving reasons as the Examiner has proffered.

one another while b) simultaneously with step a) stretching the precursor filament at a draw ratio of at least 1.0.

Significantly, the Examiner has not addressed the facts presented in the Dirks Declaration with respect to the *unobviousness* of substituting staple fibers for continuous fibers when making a monofilament-like product as defined in the Applicants' claims. In this regard, Mr. Dirks noted that to produce monofilament-like fibers made from precursor staple fibers which achieve better abrasion resistance as compared to similar monofilament-like fibers made from precursor continuous fibers is in fact a surprising result.⁷ Specifically, Mr. Dirks noted that:

"...the improvement of the abrasion resistance effects of the monofilament-like fibers according to the claimed invention of the [subject] '435 application is surprising since during abrasion resisting testing, the borders of the fused precursor filaments are expected to be the point of origin for fiber breakage. Staple fibers have of course more "borders" between one another as compared to continuous fibers. Therefore, ***even a skilled person in this art would expect that the abrasion resistance of monofilament-like fibers made from precursor staple fibers would be worse than monofilament-like fibers made from precursor continuous fibers.***"⁸

As a result of the technical facts stated in the Dirks Declaration, the ordinarily skilled person would not be motivated to substitute precursor staple fibers for precursor continuous fibers in a monofilament-like fiber since to do so would result in an expected

⁷ Dirks Declaration of record at paragraph 3 thereof.

⁸ *Id.* At paragraph 4 thereof, emphasis added.

decrease – not increase – in abrasion resistance. Hence, even assuming for the moment that an ordinarily skilled person might possibly enjoy some “waste savings” when using staple fibers according to the Examiner’s factually unsubstantiated assertion, such waste savings would not in fact be of paramount importance when the ordinarily skilled person would expect that *the entire yarn would be wasted* when attempting to make an abrasion resistant monofilament like product – i.e., since there would be an expectation that the staple fiber in the yarn would result in worse, not better, abrasion resistance.

The Examiner has offered no factual basis to rebut the evidence which is of record herein. As a result, the Examiner has not established a prima facie case of obviousness under 35 USC §103(a). The Examiner’s rejection advanced against pending claims 1-3, 5-9 and 16-17 under such statutory provision based on Cook and WO ‘029 must therefore be reversed.

2. Claim 4 is patentably unobvious over Cook in view of WO ‘029 and JP ‘646

The comments above are equally germane to the *unobviousness* of claim 4 over Cook in view of WO ‘029 and JP ‘646. In this regard, the Examiner is apparently citing JP ‘646 for the proposition that making staple fibers by means of stretch-breaking of multifilament yarns is known. As with staple fibers per se, applicants do not dispute that JP ‘646 discloses one manner in which the art has known to actually make staple fibers. However, here again the fact that staple fibers may be known and that such staple fibers may be made by stretch-breaking does not bridge the gap in this art with respect to employing staple fibers in a process as defined by claim 4 wherein monofilament-like products are obtained having surprisingly enhanced (and indeed to use the Examiner’s own vernacular, *unexpected improvement*) over the prior art products made with continuous filaments.

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Hence, reversal of the Examiner's rejection of claim 4 under 35 USC §103(a) is also in order.

3. Conclusion.

For the reasons advanced, all of the Examiner's rejections of the pending claims herein under 35 USC §103(a) are in error and must be reversed. Such favorable action is solicited.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. (previously presented) Process for making a monofilament-like product comprising the steps of:
 - a) exposing a precursor of indefinite length containing at least one strand comprised of a spun yarn of polyolefin staple fibres to a temperature within the melting point range of the polyolefin fibres for a time sufficient to soften the staple fibers without partial melting and allow adjacent staple fibers to at least partly fuse to one another, and
 - b) simultaneously with step a) stretching the precursor at a draw ratio of at least 1.0.
2. (original) Process according to claim 1, wherein the draw ratio is from 1.2 to 25.
3. (previously presented) Process according to claim 1, wherein the polyolefin is ultra- high molar mass polyethylene.
4. (previously presented) Process according to claim 1, wherein the staple fibres have been obtained by stretch-breaking of a polyolefin multifilament yarn.
5. (previously presented) Process according to claim 1, wherein the precursor contains plied and twisted strands.
6. (previously presented) Process according to claim 1, further comprising a step preceding step a) of pretreating the precursor in order to enhance inter fibre bonding.
7. (original) Process according to claim 6, wherein pretreating comprises applying an oil to the precursor.

8. (original) Process according to claim 6, wherein pretreating comprises applying a polyurethane composition to the precursor.
9. (previously presented) Process according to claim 1, further comprising a step of applying a coating composition to the product after steps a) and b).
10. (withdrawn) Monofilament-like product comprising an at least partly fused spun yarn made from polyolefin staple fibres made by the process according to claim 1.
11. (withdrawn) A fishing line which comprises a monofilament-like product according to claim 10.
12. (withdrawn) A cut-resistant article which comprises a monofilament-like product according to claim 10.
13. (withdrawn) Monofilament-like product according to claim 10, comprising an outer surface layer in which the polyolefin staple fibers are at least partly fused to one another.
14. (withdrawn) Monofilament-like product according to claim 13, wherein the polyolefin staple fibers are at least partly fused to one another in both the outer surface layer and an inner layer of the product.
15. (withdrawn) Monofilament-like product comprising a spun yarn made from polyolefin staple fibers, wherein adjacent ones of the staple fibers are at least partly fused without being partially melted.
16. (previously presented) Process according to claim 1, wherein step a) is practiced such that adjacent polyolefin staple fibers in at least an outer surface layer of the monofilament-like product are at least partly fused to one another without partial melting.

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17. (previously presented) Process according to claim 16, wherein step a) is practiced to at least partly fuse staple fibers to one another without melting in both the outer layer and an inner layer of the monofilament-like product.

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IX. EVIDENCE APPENDIX

Evidence⁹

Declaration Under 37
CFR § 1.132

Statement of Record Entry

Filed and entered into the Official Record with
Response Under Rule 111 dated December 11,
2008 (referenced herein as the "Dirks Declaration")

⁹ A copy of the record evidence is attached as required by Rule 41.37(c)(1)(ix).

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X. RELATED PROCEEDINGS APPENDIX

[NONE]

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XI. CERTIFICATE OF SERVICE

[NOT APPLICABLE]